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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,743	10/01/2001	Yuji Kaneko	743421-44	3611

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EXAMINER

SHEEHAN, JOHN P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 05/13/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,743

Applicant(s)

KANEKO ET AL

Examiner

John P. Sheehan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1 to 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

I. The claims recite that "Q is at least one element selected from the group consisting of B and C" (for example see claim 1, lines 5 and 6). In view of this language, B is considered to be optional. However, the claims also recite that the claimed magnet must contain the "Nd₂Fe₁₄B type compound". In view of the requirement that the claimed magnet must contain the "Nd₂Fe₁₄B type compound" it appears that the claimed magnet must contain B. The claims are considered to be indefinite in that on the one hand B appears to be optional while on the other hand B appears to be required. In view of this conflict in the claims,

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those skilled in the art would not understand what is claimed even when the claims are read in light of the specification.

II. Claims 13 to 25 recite, " $0 < q \leq 20$ at%" and " $0 \leq q/(p + q) \leq 0.3$ at%". In view of the definition " $0 < q \leq 20$ at%" q must always be greater than zero. If q must always be greater than zero then it is not clear how " $q/(p + q)$ " can ever be equal to zero as set forth in the definition, " $0 \leq q/(p + q) \leq 0.3$ at%". In view of this conflict in the claims, those skilled in the art would not understand what is claimed even when the claims are read in light of the specification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 to 3, 5, 7 to 16, 18 and 20 to 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takebuchi et al. (Takebuchi, US Patent No. 5,431,747).

Takebuchi teaches a sintered rare earth-transition metal-boron magnet.

Although Takebuchi discloses the composition in weight percents (column 5, lines 30 to 35), Takebuchi's composition when converted to atomic percents is as follows;

Rare earth metal(s)	11.9 to 18.7 atomic %
Iron	57.5 to 84.5 atomic % and

Boron

3 to 24.4 atomic %.

Takebuchi also teaches that the alloy composition can contain Co and other optional elements including Al and Sn as recited in claims 13 to 16, 18 and 20 to 25 and that the rare earth component of the composition can contain La or Y (column 5, line 31). Thus, Takebuchi is considered to teach a composition that overlaps the alloy composition recited in applicants' claims 1 to 3, 5, 7 to 16, 18 and 20 to 25. Takebuchi teaches that the sintered magnet contains crystal grains having the $R_2T_{14}B$ structure and a grain boundary phase composed of an R-enriched phases (column 2, lines 40 to 45). The Examiner considers that Takebuchi's disclosure of an R-enriched phase means that the grain boundary phase contains more rare earth than the $R_2T_{14}B$ phase and that since Takebuchi's rare earth can contain La and/or Y (column 5, line 31) Takebuchi's disclosure encompasses an embodiment wherein the grain boundary phase contains more La and/or Y than the $R_2T_{14}B$ phase as recited in applicants' claims. Takebuchi teaches that the sintered magnet is made by preparing a powder of the alloy wherein the powder has a particle size of 1 to 10 microns which encompasses applicants' claims 12 and 25. Takebuchi discloses that the pulverization step is done in a non-oxidizing gas such as nitrogen or argon (column 10, lines 13 to 15) which is encompassed by applicants claims 10, 11, 23 and 24 which recite that the pulverization step is done in "a gas whose oxygen content is controlled". Takebuchi teaches that the sintering step is at a temperature of 1,000 to 1,200 °C (column 10, lines 39 to 40). Applicants' claims

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9 and 22 recite a two step annealing procedure wherein the compact is held at a temperature in the range of 650 to 1,000 °C for 10 to 240 minutes. It is the Examiner's position that heating a compact from a temperature of 650 °C to a temperature of 1000 °C would take at least 10 minutes and that applicants' claimed 2 step sintering process encompasses heating the compact to sintering temperature taught by Takebuchi. In view of the above discussion, Takebuchi is considered to teach a sintered rare earth-transition metal-boron magnet having a composition that overlaps the composition recited in applicants' claims and which is made by a process which overlaps the process recited in applicants' claims.

The claims and Takebuchi differ in that Takebuchi does not teach the exact same alloy composition, Takebuchi does not explicitly teach that the grain boundary phase contains a higher concentration of Y and/or La nor the process operating conditions recited in applicants' dependent claims nor

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because in view of the explanation given above the alloy composition including the limitation that the grain boundary phase contains a higher concentration of Y and/or La and the process taught by Takebuchi overlap the applicants' claims. A prima facie case of obviousness exists when the ranges of a claimed invention overlap the ranges disclosed in the prior art In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Allowable Subject Matter

6. Claims 4, 6, 17 and 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 4, 6, 17 and 19 none of the references alone or combination teach or suggest a sintered rare earth-transition metal-boron magnet nor a process of making a sintered rare earth-transition metal-boron wherein the rare earth alloy powder used to make the sintered product contains oxygen in a range of 2000 ppm by weight to 8000 ppm by weight as recited in claims 6 and 19 nor a sintered rare earth-transition metal-boron magnet containing oxygen in a range of 2000 ppm by weight to 8000 ppm by weight as recited in claims 4 and 17.

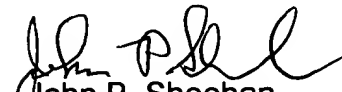
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (703) 308-3861. The examiner can normally be reached on T-F (6:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.


John P. Sheehan
Primary Examiner
Art Unit 1742

jps
May 9, 2003